AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Original) A method to produce an IL-11 agonist, which comprises producing a protein having the sequence of an IL-11 mutein that is derivable from a wild-type IL-11 sequence by replacement of at least two non-hydrophobic amino acids within the epitope for IL-11Rα by hydrophobic ones.

2. (Original) An IL-11 mutein, the sequence of which comprises a sequence which is derivable from the complete sequence of a wild-type IL-11:

- by replacement of the hydrophilic amino acids at positions 182 and 186 (positions computed by reference to the complete wild-type sequence) by X_1 and X_2 respectively, X_1 and X_2 being chosen from the group comprising:

  - Valine (symbol = V or Val),
  - Alanine (symbol = A or Ala),
  - Proline (symbol = P or Pro),
  - Leucine (symbol = L or Leu),
  - Isoleucine (symbol = I or Ile),
  - Phenylalanine (symbol = F or Phe),
  - Methionine (symbol = M or Met), and
  - Tryptophan (symbol = W or Trp),

- and by deletion of a N-terminal portion that does not exceed the first 34 N-terminal amino acids.

3. (Original) The IL-11 mutein of claim 2, wherein said wild-type IL-11 has the sequence of a human IL-11, or of a macaque IL-11, or of a mouse IL-11, or of a rat IL-11.

4. (Currently Amended) The IL-11 mutein of claim 2, the sequence of which comprises a sequence chosen from the group comprising SEQ ID NO:9, SEQ ID NO:24, SEQ ID NO:39, SEQ ID NO:54, and the conservative variant sequences thereof, wherein said conservative variant sequences are of at least 80%, preferably at least 90% identity with at least one of SEQ ID NO:9, SEQ ID NO:24, SEQ ID NO:39, or SEQ ID NO:54~~, provided that X_1 and X_2 are still as defined in claim 2,~~ and provided that the resulting variant protein has retained the ability to induce proliferation of an IL-11 dependent cell line.

5. (Original) The IL-11 mutein according to claim 2, wherein X1 and X2 are V or A.

6. (Original) The IL-11 mutein according to claim 2, wherein X1=V and X2=A.

7. (Original) The IL-11 mutein of claim 6, which comprises a sequence of SEQ ID NO:10, or of SEQ ID NO:25, or of SEQ ID NO:40, or of SEQ ID NO:55.

8. (Original) The IL-11 mutein according to claim 2, wherein X1=A and X2=V.

9. (Original) The IL-11 mutein of claim 8, which comprises a sequence of SEQ ID NO:11, of SEQ ID NO:26, of SEQ ID NO:41, or of SEQ ID NO:56.

10. (Original) The IL-11 mutein according to claim 2, wherein X1=V and X2=V.

11. (Original) The IL-11 mutein of claim 10, which comprises a sequence of SEQ ID NO:12, of SEQ ID NO:27, of SEQ ID NO:42, or of SEQ ID NO:57.

12. (Original) The IL-11 mutein according to claim 2, wherein X1=A and X2=A.

13. (Original) The IL-11 mutein of claim 12, which comprises a sequence of SEQ ID NO:13, of SEQ ID NO:28, of SEQ ID NO:43, or of SEQ ID NO:58.

14. (Currently Amended) The IL-11 mutein according to claim 2, which comprises a sequence which is derivable from the complete sequence of a wild-type IL-11:

- by replacement of the hydrophilic amino acids in positions 182 and 186 (positions computed by reference to the complete wild-type sequence) by X_1 and X_2 respectively, ~~X_1 and X_2 being as defined in claim 2,~~ and

- by deletion of the first 21 N-terminal amino acids.

15. (Currently Amended) The IL-11 mutein according to claim 14, which comprises a sequence of SEQ ID NO:14, SEQ ID NO:29, SEQ ID NO:44 or SEQ ID NO:59~~, wherein X_1 and X_2 are defined in claim 2~~.

16. (Original) The IL-11 mutein according to claim 14, which comprises a sequence of SEQ ID NO:14, SEQ ID NO:29, SEQ ID NO:44 or SEQ ID NO:59, and wherein X_1=V and X_2=A.

17. (Original) The IL-11 mutein according to claim 16, which comprises a sequence of SEQ ID NO:15, or of SEQ ID NO:30, or of SEQ ID NO:45, or of SEQ ID NO:60.

18. (Original) The IL-11 mutein according to claim 14, which comprises a sequence of SEQ ID NO:14, SEQ ID NO:29, SEQ ID NO:44 or SEQ ID NO:59, and wherein X_1=A and X_2=V.

19. (Original) The IL-11 mutein according to claim 16, which comprises a sequence of SEQ ID NO:16, or of SEQ ID NO:31, or of SEQ ID NO:46, or of SEQ ID NO:61.

20. (Original) The IL-11 mutein according to claim 14, which comprises a sequence of SEQ ID NO:14, SEQ ID NO:29, SEQ ID NO:44 or SEQ ID NO:59, and wherein X_1=V and X_2=V.

21. (Original) The IL-11 mutein according to claim 20, which comprises a sequence of SEQ ID NO:17, or of SEQ ID NO:32, or of SEQ ID NO:47, or of SEQ ID NO:62.

22. (Original) The IL-11 mutein according to claim 14, which comprises a sequence of SEQ ID NO:14, SEQ ID NO:29, SEQ ID NO:44 or SEQ ID NO:59, and wherein X_1=A and X_2=A.

23. (Original) The IL-11 mutein according to claim 22, which comprises a sequence of SEQ ID NO:18, or of SEQ ID NO:33, or of SEQ ID NO:48, or of SEQ ID NO:63.

24. (Currently Amended) The IL-11 mutein according to claim 2, which comprises a sequence which is derivable from the complete sequence of a wild-type IL-11, by replacement of the hydrophilic amino acids in positions 182 and 186 (positions computed by reference to the complete wild-type sequence) by X_1 and X_2 respectively~~, X_1 and X_2 being as defined in claim 2~~.

25. (Currently Amended) The IL-11 mutein according to claim 24, which comprises a sequence of SEQ ID NO:19, or of SEQ ID NO:34, or of SEQ ID NO:49, or of SEQ ID NO:64~~, wherein X_1 and X_2 are as defined in claim 2~~.

26. (Original) The IL-11 mutein according to claim 24, wherein X_1=V and X_2=A.

27. (Original) The IL-11 mutein according to claim 24, wherein X_1=V and X_2=A, and which comprises a sequence of
SEQ ID NO:20, or of SEQ ID NO:35, or of SEQ ID NO:50, or of SEQ ID NO:65.

28. (Original) The IL-11 mutein according to claim 24, wherein X_1=A and X_2=V.

29. (Original) The IL-11 mutein according to claim 24, wherein X_1=A and X_2=V, and which comprises a sequence of SEQ ID NO:21, or of SEQ ID NO:36, or of SEQ ID NO:51, or of SEQ ID NO:66.

30. (Original) The IL-11 mutein according to claim 24, wherein X_1=V and X_2=V.

31. (Original) The IL-11 mutein according to claim 24, wherein X_1=V and X_2=V, and which comprises a sequence of SEQ ID NO:22, or of SEQ ID NO:37, or of SEQ ID NO:52, or of SEQ ID NO:67.

32. (Original) The IL-11 mutein according to claim 24, wherein X_1=A and X_2=A.

33. (Original) The IL-11 mutein according to claim 24, wherein X_1=A and X_2=A and which comprises a sequence of SEQ ID NO:23, or of SEQ ID NO:38, or of SEQ ID NO:53, or of SEQ ID NO:68.

34. (Currently Amended) A nucleic acid, wherein its sequence codes for a mutein according to ~~any one of claims~~claim 2-~~33~~.

35. (Original) The nucleic acid according to claim 34, which comprises the sequence of SEQ ID NO:72, wherein each of $n_1n_2n_3$ and $n_4n_5n_6$ codes for:

- Valine (symbol = V or Val), or
- Alanine (symbol = A or Ala), or
- Proline (symbol = P or Pro), or
- Leucine (symbol = L or Leu), or
- Isoleucine (symbol = I or Ile), or
- Phenylalanine (symbol = F or Phe), or
- Methionine (symbol = M or Met), or
- Tryptophan (symbol = W or Trp).

36. (Original) The nucleic acid according to claim 34, which comprises the sequence of SEQ ID NO:72, wherein $n_1n_2n_3$ and $n_4n_5n_6$ are both selected from the group comprising the following codons:

- GCT, GCC, GCA, GCG,
- GTT, GTC, GTA, GTG,
- TTA, TTG, CTT, CTC, CTA, CTG,
- ATT, ATC, ATA,

- TTT, TTC,
- ATG,
- CCT, CCC, CCA, CCG,
- TGG.

37. (Currently Amended) The nucleic acid according to claim 34, which comprises the sequence of SEQ ID NO:71 or of SEQ ID NO:70~~, wherein the codons $n_1n_2n_3$ and $n_4n_5n_6$ are as defined in claim 35~~.

38. (Currently Amended) The nucleic acid according to claim 34, which comprises the sequence of SEQ ID NO:76 or of SEQ ID NO:74~~, wherein the codons $n_1n_2n_3$ and $n_4n_5n_6$ are as defined in any one of claims 35-36~~.

39. (Original) The nucleic acid according to claim 34, which has the RNA sequence of SEQ ID NO:75, wherein the codons $n_1n_2n_3$ and $n_4n_5n_6$ are both selected from the group comprising the following codons:

- GCU, GCC, GCA, GCG
- GUU, GUC, GUA, GUG,
- UUA, UUG, CUU, CUC, CUA, CUG,
- AUU, AUC, AUA,
- UUU, UUC,
- AUG,

- CCU, CCC, CCA, CCG,
- UGG.

40. (Original) A transfection vector, which comprises a nucleic acid according to claim 34.

41. (Original) The transfection vector according to claim 40, which further comprises a nucleotide sequence coding for a Flag tag.

42. (Currently Amended) The transfection vector according to claim 40, which comprises the sequence of SEQ ID NO:79~~, wherein $n_1n_2n_3$ and and $n_4n_5n_6$ are as defined in claim 35~~.

43. (Currently Amended) A cell, which comprises a nucleic acid according to claim 34, or which has been transfected by a tranfection vector ~~according to claim 40~~, or which express a mutein ~~according to claim 2~~.

44. (Currently Amended) A drug which comprises:

- a therapeutically effective amount of an IL-11 mutein according to claim 2, or of a nucleic acid ~~according to claim 34~~, or of a transfection vector ~~according to claim 40~~, or of a cell ~~according to claim 43~~,
- and, optionally, a pharmaceutically-acceptable vehicle.

45. (Original) The drug according to claim 44, which is intended for the prevention or treatment of an inflammatory disease or condition.

46. (Original) The drug according to claim 44, which is intended for the prevention or treatment of a septic shock.

47. (Original) The drug according to claim 44, which is intended for the prevention or treatment of diabetes.

48. (Original) The drug according to claim 44, which is intended for inhibiting microvascular endothelium apoptosis.

49. (Original) The drug according to claim 44, which is an anti-thrombocytopenia drug.